Computed vs Observed Lines Profiles of Metallic Atoms in Prominences

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In recent years several solar prominence models were developed to determine different physical parameters such as temperature, density and pressure along the modelled prominence structure. By solving simultaneously the radiative transfer and statistical equilibrium equations we compute lines profiles for the Ca II H and K lines, Mg II h and k lines and He I at 584,3 Å for several models given by the hydrogen atom. The prominence models differ in pressure (isobaric), temperature and width of the central core. The number of threads is also used as a free parameter. The computed profiles are compared with the observations made with the SUMER instrument on board SOHO and with the LPSP instrument on board the OSO 8 satellite in order to constrain the physical plasma parameters of solar prominences.